DEPARTMENT OF MATHEMATICS

Semester : II	**Integrated M.Sc. Mathematics** **Academic Year : 2017-18**

Subject : GE2 Mathematical Finance (060090207)

Teaching Schedule

Course Objectives: To understand, analyse and interpret financial problems and data using mathematical methods for making good financial decisions.

To impart a comprehensive knowledge of security analysis and portfolio management.

Unit	Sub Unit	No. of Lect.(s)	Topics	Reference Chapter/ Additional Reading	Teaching Methodology to be used
Unit 1: Time Value of Money					**[16]**
1	1.1	1	Introduction, Rational	M Y Khan P K Jain, Financial Management Text, Problems and cases,6th edition, McGraw Hill Education Private Limited, New Delhi	Chalk & Talk
	1.2	7	Techniques; Compounding technique, semi-annual compounding periods: semi-annual compounding, Quarterly compounding, Future/Compounding value of a series of payment, Compounding sum of an annuity		
	1.3	8	Present value or Discounting technique, Mathematical Formulation, Present value of series of cash flows, Present value of infinite life annuity		
Unit 2: Valuation of Bonds and Shares					**[17]**
2	2.1	7	Valuation of Bonds and Shares: Basic valuation of Model, Valuation of Bond/Debentures	M Y Khan P K Jain, Financial Management Text, Problems and cases,6th edition, McGraw Hill Education Private Limited, New Delhi	Chalk & Talk
	2.2	4	Valuation of preferences shares		
	2.3	6	Valuation of ordinary shares, other approaches to valuation of shares		
Unit 3: Capital Budgeting					**[14]**
3	3.1	2	Nature of capital budgeting	M Y Khan P K Jain, Financial Management Text, Problems and cases,6th edition, McGraw Hill Education Private Limited, New Delhi	Chalk & Talk
	3.2	1	Data requirement		
	3.3	9	Evaluation Techniques: Average Rate of Return, Pay-Back Method, Discounted cash flow, Present value, Net Present Value, Internal Rate of Return, Terminal Value Method, Profitability Index		
	3.4	2	NPV, IRR, and Profitability Index Methods – a comparison study		
Unit 4: Portfolio Management					**[18]**
4	4.1	2	Risk and return: Risk and types of risk	M Y Khan P K Jain, Financial Management Text, Problems and cases,6th edition, McGraw Hill Education Private Limited, New Delhi	Chalk & Talk
	4.2	5	Portfolio-Markowitz Model: Simple diversification, the Markowitz model, risk and return with different correlation, Markowitz efficient frontier		
	4.3	5	The Sharpe Index Model: Single index		

			Model, Corner Portfolio, Sharpes Optimal Portfolio, Optimum Portfolio with Short sales	
	4.4	6	Capital Assets Pricing Theory and Arbitrage Pricing Theory: The CAMP theory, Arbitrage pricing theory	

Text Book

M Y Khan P K Jain, Financial Management Text, Problems and cases,6th edition, McGraw Hill Education
Private Limited, New Delhi.

Reference Book:

Punithavathy Pandian, Security Analysis and Portfolio Management, Vikas Publishing House Pvt Ltd.,
New Delhi